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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/468,649	06/06/95	IZUMI	Y 45.605

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DIKE BRONSTEIN ROBERTS & CUSHMAN
130 WATER STREET
BOSTON MA 02109

DUDEK, J.
EXAMINER

ART UNIT	PAPER NUMBER
2515	7

DATE MAILED: 08/13/96

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
08/468,649

Applicant(s)
Izumi et al.

Examiner
James Dudek

Group Art Unit
2515



☒ Responsive to communication(s) filed on Jun 26, 1996

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-46 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-46 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☒ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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Part III DETAILED ACTION

Specification

1. The following is a quotation of the first paragraph of 35 U.S.C. § 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification is objected to under 35 U.S.C. § 112, first paragraph, as failing to adequately teach how to make and/or use the invention, i.e. failing to provide an enabling disclosure.

Throughout the disclosure, the applicant refers to cross nicol deflecting plates; this is inconsistent with the drawings or the terminology used in the art. Therefore, the applicant has not disclosed how to make the deflecting plates described in the specification. Note that for the purpose of examination the deflecting plate 8 is considered to be a pair of crossed polarizers. Also the applicant has not disclosed how to make a very thin photo-blocking layer, i.e. 10^{-20} μm and how the embodiments requiring the photo-blocking would work when the width was zero.

The specification is objected to under 35 U.S.C. § 112, first paragraph, the specification as originally filed, does not provide support for the invention as is now claimed.

The plurality of non-electrically interconnected liquid crystal panels have not been described in the specification as originally filed. The liquid crystal panels must be electrically

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connected in order for the plurality of panels to operate as a single panel. Although the liquid crystal panels may not be directly connected via a wire, the panels at some point, such as the source, would provide an electrical connection of the panels. Therefore, the specification as originally filed does not disclose the device as claimed.

Claim Rejections - 35 USC § 112

2. Claims 1-47 are rejected under 35 U.S.C. § 112, first paragraph, for the reasons set forth in the objection to the specification.
3. Claims 10-13, 18 and 23 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "an active element in matrix" is indefinite because it is unclear if the active element is a plurality of active element or only a single active element.

Claims 18 and 23 are included in this rejection because they depend from the above-rejected claims and thus inherently possess the above-noted deficiencies.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 4, 32, 35 and 43 are rejected under 35 U.S.C. § 102(b) as being anticipated by Kibe (6-95130).

Kibe's figures 1-5 disclose a liquid crystal display with a plurality of liquid crystal panels (10) not having a direct electrical connection between each panel via a wire, a pixel electrode within each panel (6), a first photo-blocking layer having a predetermined trace width (3) and a third (or second) photo-blocking layer (5) which would have elasticity.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

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7. Claims 9, 12, 16, 21, 26, 29 and 46 are rejected under 35 U.S.C. § 103 as being unpatentable over Kibe.

Kibe discloses the claimed invention except for the refraction factor adjusting material (13) being disposed in the interconnecting of said liquid crystal panels.

However, Kibe does teach using the refraction factor adjusting material to prevent the refraction of light between connecting panels in a display having a plurality of panels.

Since the panels of Kibe would have reflected light at the edge of the substrate and filling the area between the adjacent substrates would have prevent the reflection, it would have been obvious to one of ordinary skill in the art at the time the invention was made to place the refraction factor adjusting material at the edges of the adjacent substrates of Kibe in order to prevent the reflection of light.

With respect to the active element matrix of claim 12, Kibe does not disclose this limitation. However, it was known that large active matrix liquid crystal display were expensive to fabricate, and in order to reduce the cost of manufacturing of large active matrix liquid crystal displays it was known to use a plurality of liquid crystal panels. Since Kibe's display is large and uses a plurality of liquid crystal panels, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use transistors since is was well known in the art and active matrix displays have high picture quality.

With respect to the thermosetting and/or ultraviolet-ray-setting resin of claims 16 and 21, Kibe does not disclose this limitation. However, it would have been obvious to one of

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ordinary skill in the art at the time the invention was made to use a thermo-setting and/or ultraviolet ray setting resin for the seal (13) of Kibe since it was well known to in the art to use thermo-setting and/or ultraviolet ray setting resin as a sealant material.

With respect to the plurality of panel placed on a single substrate or disposed between two substrates of claims 26 and 29, since Kibe does not disclose any support and the element supporting the plurality of panels is the mask (5), it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate two opposing substrates which would provide support for the plurality of panels.

With respect to claim 46, dependent on claim 43, Kibe does not disclose the use of carbon. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use carbon as a mean for absorbing light in the blocking layer (5) of Kibe's display, since it was well known to use carbon as a light blocking material.

8. Claims 38 is rejected under 35 U.S.C. § 103 as being unpatentable over Kibe in view of Kitahara (4,733,948) and Masaki et al. (4,951,240).

Kibe discloses the claimed invention except for the first photo-blocking layer being made of a metal and photo-absorbing film.

However, Kitahara and Masaki et al. teach that it was known to use a metal light blocking layer in a liquid crystal display.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a metal light blocking layer in the display of Kibe since both Kitahara and Masaki et al. teach it was well known to use metal light blocking layers.

Regarding the light absorbing material, it would have been obvious to one of ordinary skill in the art at the time the invention was made to on the metal light blocking layer of Kibe in view of Kitahara and Masaki et al. in order to improve the light blocking capabilities of the layer.

9. Claims 1-3, 7-8, 10-11, 13-15, 17-20, 22-25, 27-28, 30-31, 33-34, 36-37, 39-42, 44 and 47 are rejected under 35 U.S.C. § 103 as being unpatentable over Kibe.

Kibe's figures disclose the claimed invention except for the following limitations:

- a. first and second polarizers provide substantially over the entire front and rear surface,
- b. an active element in a matrix,
- c. a thermosetting and/or ultraviolet-ray-setting resin,
- d. upper and lower substrates which form a main body,
- e. a refractive factor adjusting material and
- f. the blocking layer made of specific materials.

With respect to the polarizers having a cross nicol configuration and covering the entire surface, it is well known in the art to use twisted nematic liquid crystal for its low

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driving voltage and a gray scale capabilities. Also note that polarizers are required in twisted nematic displays and cross nicol polarizers are well known in the art.

Since twist nematic liquid crystal panels require a pair of polarizers and it is well known to cross the plane of polarization of each polarizer, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the display of Kibe with a pair of crossed polarizers since it was known to use twisted nematic for its low driving voltage and gray scale capabilities and twisted nematic panels require a pair of polarizers. Also placing the polarizer over the entire surface of the plurality of panels would have been obvious because use of a single polarizer as opposed to a plurality of polarizers would reduce the likelihood of a viewer finding a seam.

With respect to the plurality of panels placed on a single substrate or disposed between two substrates of claims 26 and 29, since Kibe does not disclose any support and the element supporting the plurality of panels is the mask (5), it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate two opposing substrates which would provide support for the plurality of panels.

With respect to the active element matrix, to reduce the cost of manufacturing of large active matrix liquid crystal displays using a plurality of liquid crystal panels was a known solution. Since Kibe's display is large and uses a plurality of liquid crystal panels, it would have been obvious to one of ordinary skill in the art at the time the invention was made to

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use transistors since it was well known in the art and active matrix displays have high picture quality.

With respect to the thermosetting and/or ultraviolet-ray-setting resin, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a thermo-setting and/or ultraviolet ray setting resin for the seal (13) of Kibe since it was well known to in the art to use thermo-setting and/or ultraviolet ray setting resin as a sealant material.

Regarding the first photo-blocking layer absorbing light and being made of metal film and/or a photo-absorbing film, an organic film, or a resin with dispersed particles, these materials are all well known for their use as a light blocking mask in liquid crystal panels. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use any of the above described materials in the display of Kibe since it was well known in the art at the time the invention was made.

With respect to the refractive factor adjusting material, Kibe does teach using the refraction factor adjusting material to prevent the refraction of light between connecting panels in a display having a plurality of panels.

Since the panels of Kibe would have reflected light at the edge of the substrate and filling the area between the adjacent substrates would have prevent the reflection, it would have been obvious to one of ordinary skill in the art at the time the invention was made to

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place the refraction factor adjusting material at the edges of the adjacent substrates of Kibe in order to prevent the reflection of light.

Response to Amendment

10. Applicant's arguments filed 6/26/96 have been fully considered but they are not deemed to be persuasive.

With respect to applicant's arguments regarding the crossed nicol deflecting plates, the applicant has not shown sufficient evidence supporting the applicant's claim that deflecting plates are used in a cross nicol state. Furthermore, the specification still fails to disclose how to make the deflecting plates used in the claimed invention.

With respect to applicant's arguments regarding the photo-blocking layer, the applicant has not disclosed how to make or how the device could operate as the limit of the trace width of the connecting parts of the liquid crystal panels approaches zero. Since the phrase "equal to or narrower than" includes zero the device must be enabling as the limit approaches zero. The specification does not teach how to make the device with a very small or no trace width of the connecting panels as claimed in claims 30-32 (these claims are the specific portion of the specification not enabling).

With respect to applicant's arguments regarding the phrase "an active element in matrix", the phrase is indefinite because it is unclear if the language claims a single element which is in a matrix or if the single element is a matrix.

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Allowable Subject Matter

11. Claim 5 and 45 would be allowable if rewritten to overcome the rejection under 35 U.S.C. § 112 and to include all of the limitations of the base claim and any intervening claims.

12. Claim 6 would be allowable if rewritten or amended to overcome the rejection under 35 U.S.C. § 112.

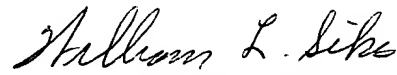
Contact Information

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Dudek whose telephone number is (703) 308-4093.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Papers related to this application may be submitted to Art Unit 2515 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Art Unit 2515 fax number is (703) 308-7726.

James Dudek
August 2, 1996


WILLIAM L. SIKES
SUPERVISORY PATENT EXAMINER
GROUP 2500